newly diagnosed FLT3-mutated AML patient <60 years was estimated at $114,193 compared to $105,819 for patients with non-FLT3-mutated AML. As early mortality and early retirement were not included in indirect costs, these may be underestimated. **CONCLUSIONS:** FLT3-mutated AML potentially represents a greater per-patient burden than non-FLT3-mutated AML due to shorter survival and greater use of stem cell transplants. Investigational treatments targeting the FLT3 mutation may provide an additional therapeutic option and have the potential to improve clinical outcomes.

PSY20

COSTS ASSOCIATED WITH THE BURDEN OF JOINT PAIN IN HEMOPHILIA A AND B PATIENTS WITH AND WITHOUT INHIBITORS

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OBJECTIVES: Hemophilia patients frequently experience joint bleeding, resulting in persistent pain and arthropathy. The objective of this study was to determine drivers of total and hemophilia-related costs among hemophilia patients with joint pain. **METHODS:** InVision™ Data Mart (OptumInsight Life Sciences, 1/2005-3/2009) was used to identify male patients with hemophilia A/B (ICD-09 286.0 and 286.1) who were treated with FVIII/FIX/bypassing agent and had ≥ 2 years of continuous enrollment from index. Patients were stratified into severe joint pain (SJP), ≥ 2 joint pain claims (ICD-9 713, 715, 716, 718, 719, 727) 12 months pre or 6 months post index, and minimal joint pain (MJP), < 2 pain claims. Cohorts were matched on age, treatment type and Charlson comorbidity scores via propensity scoring. Random forest analysis informed covariate selection for log-transformed linear regression models. Covariate selection was further refined based on variance inflation, variable significance and medical relevance. **RESULTS:** A total of 284 patients (142 SJP, 142 MJP); mean age=30 years were identified. Mean (median) total cost of all patients was $630K ($248K) over a 2-year period but were significantly higher for SJP- $917K compared to MJP- $354K ($p<0.01$). Hemophilia therapy was the main driver of total patient cost ($p<0.0001$). Home health visits ($p<0.0001$), hemophilia-related hospital visits ($p<0.0001$) and age ($p<0.01$) were also significant drivers of SJP costs. Removal of covariates measuring factor therapy or claims with hemophilia diagnoses showed that joint pain claims ($p<0.01$), injectible medications ($p<0.01$), Charlson Comorbidity Index ($p<0.01$), non-hemophilia lab tests ($p<0.01$), anti-infective medications ($p<0.01$), and age ($p<0.001$) were significantly related to total patient cost. **CONCLUSIONS:** The treatment of joint pain marks significantly higher hemophilia costs, however, some of these differences may be attributed to hemophilia severity (not coded within ICD-9). Modification of ICD-9 codes may help understand economics among hemophilia patients in the future.

PSY21

HEALTH CARE COSTS ASSOCIATED WITH POSTHERPETIC NEURALGIA AND ITS TREATMENT WITH GABAPENTIN AND PREGABALIN

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OBJECTIVES: Postherpetic neuralgia (PHN) is a painful, chronic condition. Gabapentin and pregabalin are common first-line medications for PHN and must be titrated over time to effective doses. Individuals with PHN may augment therapy with opioids to control pain. Pain management for PHN can require substantial healthcare resources. The study objective was to evaluate costs for persons with PHN. **METHODS:** This retrospective claims database analysis used medical and pharmacy claims data and enrollment information for adult commercial and Medicare Advantage enrollees in a large, national US health plan. Patients had ≥1 pharmacy claim for gabapentin or pregabalin from January 2006–February 2009; the date of the first claim was the index date. Patients also had diagnosis codes for PHN (ICD-9-CM 053.1x) on or within 2 days after the index date; and 6-month and 12-month pre- and post-index periods, respectively, during which they were continuously enrolled. Total medical, outpatient pharmacy, and health care (medical + pharmacy) post-index costs per patient with PHN per month were compared between gabapentin and pregabalin cohorts. **RESULTS:** The study population comprised 1645 patients, 939 in the gabapentin cohort and 706 in the pregabalin cohort; 77.6% were commercial enrollees and 22.4% were Medicare Advantage enrollees. The mean (standard deviation) monthly healthcare costs were $1,749 ($6,117) for the gabapentin cohort and $1,570 ($4,935) for the pregabalin cohort ($p=0.512$). Mean monthly medical costs were $1326 ($5831) in the gabapentin cohort and $985 ($4,753) in the pregabalin cohort ($p=0.192$). The pregabalin cohort had higher mean monthly pharmacy costs ($585 [$727]) than did the gabapentin cohort ($423 [$755], $p<0.001$). **CONCLUSIONS:** Health care costs for patients with PHN are substantial: approximately $1700 per person with PHN per month, and approximately $20,000 per year. Health care costs between the gabapentin and pregabalin cohorts were not significantly different despite significantly different mean pharmacy costs.

PSY22

HEALTH CARE COSTS FOR INFLAMMATORY BOWEL DISEASE PATIENTS WHO ARE ADHERENT VERSUS NON-ADHERENT WITH INFLIXIMAB THERAPY

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OBJECTIVES: Prior research evaluated the impact of infliximab (IFX) adherence on resource use and costs in Crohn's disease (CD). Purpose was to examine the association between adherence and all-cause healthcare costs among those who are treated with IFX for inflammatory bowel disease (IBD). **METHODS:** Patients with >1 claims for IFX initiated between January 1, 2006 to December 31, 2009 who had >2 IBD diagnoses of Crohn's disease (CD; ICD-9-CM: 555.XX) or ulcerative colitis (UC; ICD-9-CM: 556.XX) during the pre-index period were identified from *Thomson Reuters Marketscan® Databases*. Patients had to be >18 years, continuously enrolled for 12 months before and after IFX initiation, and had no prior use of IFX during 360-days pre-index. Patients with prior biologic therapy or rheumatoid arthritis (ICD-9-CM: 714.XX) were excluded. Adherent group was classified as having a medication possession ratio (MPR) of >80%; non-adherent group had an MPR<80%. Differences between the adherent and non-adherent groups were assessed using propensity-weighted general linear models. **RESULTS:** A total of 1,646 IBD patients were identified (945 CD; 701 UC) with a mean (SD) age of 44.4 (15.6) and 48.3% were female. Of these, 41% were adherent and 59% were non-adherent. Propensity-weighted mean total healthcare costs excluding IFX were $13,424 vs. $32,522 ($P<0.0001$) for the adherent vs. non-adherent groups. Mean all-cause component costs were $2,458 vs. $17,634 ($P<0.0001$) for hospitalizations, $7,357 vs. $10,909 ($P<0.0001$) for outpatient visits, and $236 vs. $458 ($P<0.0001$) for ER visits in the adherent vs. non-adherent groups, respectively; total costs (component+ IFX) were also significantly lower in the adherent group. No significant differences were observed in other prescription costs. **CONCLUSIONS:** Medication adherence was associated with significantly lower total healthcare costs in patients treated with IFX for IBD. These differences may be explained by reduced hospitalization, outpatient, and ER costs observed in the adherent vs. non-adherent groups.

PSY23

BURDEN OF ILLNESS OF AGGRESSIVE SYSTEMIC MASTOCYTOSIS (ASM) IN THE UNITED STATES

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OBJECTIVES: Little data are available on the burden of ASM, a subtype of systemic mastocytosis (SM) and severe form of mast cell disease that may progress to mast cell leukemia. This study reviewed the literature in order to estimate the burden of ASM in the US. **METHODS:** A systematic literature review was conducted to identify publications from 2000-2011; 181 citations were identified and 6 articles abstracted. The US population-level burden of ASM was estimated using an Excel model. Direct treatment costs were calculated from treatment patterns described in identified publications. **RESULTS:** ASM involves multiple organ systems, resulting in potentially severe symptoms/conditions including anaphylaxis/allergic reactions, osteoporosis, hepatomegaly, splenomegaly, gastrointestinal symptoms, fatigue, and weight loss. There is no known cure for ASM. Median survival was 41 months in a published cohort study. No publications were identified providing US epidemiology data. Two estimates were calculated for the prevalence of ASM in the US in 2010: 616 and 1,220. A global prevalence rate of 0.2/100,000 resulted in 616 cases. An SM prevalence rate of 3.3/100,000 (assuming 12% ASM) resulted in 1,220 cases. Incidence was estimated at 111 cases in 2010 using an SM incidence rate of 0.3/100,000 (assuming 12% ASM). The proportion of ASM/SM cases ranged from 7-18% in the literature with 12% from the largest study. No studies were identified examining the economic burden of ASM. In this model, direct monthly per-patient costs were estimated between $5232 and $8741. These are likely underestimated as a result of limited resource utilization information in the literature. **CONCLUSIONS:** These results provide preliminary estimates for the burden of ASM in the UNITED STATES. Additional research can assist in further quantifying these estimates. In addition, it is likely that ASM patients experience tremendous indirect costs due to the symptomatic burden of the disease and further evaluation is warranted.

PSY24

ASSOCIATION OF PATIENT COST OR REIMBURSEMENT CHALLENGES WITH HEALTH CARE RESOURCE UTILIZATION, QUALITY OF LIFE, AND WORK PRODUCTIVITY AMONG PATIENTS WITH INFLAMMATORY BOWEL DISEASE

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OBJECTIVES: To evaluate the association of patient cost or reimbursement challenges with healthcare resource utilization, quality of life (QoL), and work productivity among patients with inflammatory bowel disease (IBD). **METHODS:** A syndicated study of IBD patients in the US was conducted. Patients ≥18 years of age were recruited via the National Health and Wellness Survey and Lightspeed Research Panel. Patients completed a survey during August–November 2010 in which they were asked if they experienced cost or reimbursement challenges related to prescription medication. The Medical Outcomes Study (MOS) IBD questionnaire was used to assess QoL. Work productivity was assessed using the Work Productivity and Activity Impairment (WPAI) questionnaire. To measure health care resource utilization, the number of provider, emergency room (ER) and hospital visits in the past six months was collected. Bivariate differences between the patient groups (those with cost or reimbursement issues versus those without) for resource utilization, QoL, and work impairment were assessed using chi-square tests for categorical variables and t-tests for continuous variables. **RESULTS:** Of 1098 IBD patients currently receiving prescription medication, 21% (n=231) reported that cost had previously prevented them from taking medication. Among patients who had ever taken prescription medication (n=1343), 13% (n=178) reported ever having a problem getting reimbursed for medication. Sixty-eight of these patients (38%) indicated their medication was not covered by insurance. Patients reporting cost or reimbursement issues had a higher probability of having provider, ER and hospital visits in the prior six months (all $p<0.05$). Furthermore, these patients reported greater work impairment and lower QoL (both $p<0.05$). **CONCLUSIONS:** Among IBD patients, cost or reimbursement challenges may be associated with more resource

utilization, lower QoL and greater work impairment. Additional research is warranted to further characterize the impact of cost and reimbursement on patient outcomes.

PSY25

HEALTH CARE RESOURCE UTILIZATION (HRU) AND COSTS ASSOCIATED WITH FLARES IN PATIENTS WITH SYSTEMIC LUPUS ERYTHEMATOSUS (SLE) IN A MEDICAID POPULATION IN THE UNITED STATES

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OBJECTIVES: Limited data exist on the economic impact of SLE flares. This study estimated HRU and costs of SLE flares in a U.S. Medicaid population. **METHODS:** SLE Patients ≥18 years old were extracted from a large Medicaid database 2002-2009. Index date was the date of the first SLE diagnosis. All patients were continuously enrolled for ≥6 months before and ≥12 months after index date and followed until the earliest of inpatient death, end of enrollment, or end of study. Mild, moderate, and severe flares were identified in the follow-up period. Costs attributable to flares were measured during 30 days following a flare. If a flare of higher severity occurred within 30 days, the length was limited to the period up to the start of the new flare. **RESULTS:** 14,262 patients met the study criteria and 97% experienced at least one flare during an average follow-up of 39 months (3,540 had severe, 9,597 had moderate, and 669 had mild flares as their most severe flares). Mean costs per flare were $11,716, $562 and $129 for severe, moderate, and mild flares, respectively. Patients with ≥1 severe flares during follow-up had 1.7 inpatient (IP) admissions, 3.5 emergency room (ER) visits, and 16.0 outpatient (OP) visits with a total medical cost of $49,754per year. Patients with ≥1 moderate flares but no severe flares had 0.9 IP admissions, 2.4 ER visits, and 12.8 OP visits with a cost of $21,941. Patients with only mild flares had the least HRU of 1.0 IP admission, 1.5 ER visits, and 7.5 OP visits with a cost of $17,574. Patients with severe and moderate but no mild flares and patients with severe flares only incurred the highest annual cost ($66,412 and $74,491, respectively). **CONCLUSIONS:** Flares occurred in almost all SLE patients and were associated with a significant economic burden.

PSY26

COSTS AND OUTCOMES OF PATIENTS WITH HAEMOPHILIA A (HA) AND FACTOR VIII INHIBITORS TREATMENT: THE IMMUNE TOLERANCE AND ECONOMICS RETROSPECTIVE REGISTRY (ITER) RESULTS

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OBJECTIVES: Immune tolerance induction (ITI) is generally accepted as first choice treatment to eradicate inhibitors in hemophilia A patients. Little is known about the outcomes and cost consequences of this treatment option. **METHODS:** The Immune Tolerance and Economics Retrospective (ITER) study is an observational, retrospective, multicentre, multinational study aiming to estimate cost of treatment in hemophilia A patients, undergoing ITI. Data on hemostatic treatment given in the following time periods were collected: up to 12 months before the diagnosis of Inhibitors, between Inhibitors diagnosis and ITI start, during ITI, and 12 months after the end of ITI. Costs of treatment were calculated in the perspective of the third party payer and expressed as mean €/patient-month. **RESULTS:** Seventy-one valid patients, with median age at ITI start=3.8 (0.4-41) years, were enrolled. Before ITI the median Inhibitors peak titre was 18.5 (0.80-704) BU. ITI was applied for a mean of 1.85 (0.1-14.0) years and was successful in 84.5% pts. Before Inhibitors diagnosis, patients cost was 670.2 €/patient-month. Cost was 3,188€/patient-month between the Inhibitors diagnosis and ITI start (92.1% for bypassing agents), and 60,078€ during ITI (76.8% for ITI, 19.4% for extra FVIII treatment, 3.8% for extra treatment with bypassing agents). The mean cost after ITI was 13,211€/patient-month. **CONCLUSIONS:** ITI applied on patients with the characteristics of those involved in the ITER study is successful in 84% of them at a mean cost of 60,000€/patient-month during ITI, plus 13,000€/patient-month through 1 year later. Further research is encouraged to value long term benefits and costs attributable to ITI versus other treatment options, in order to identify the most efficient treatment for the patients and for the health care system.

PSY27

COST EFFECTIVENESS OF TREATMENT WITH ETANERCEPT OR USTEKINUMAB FOR MODERATE TO SEVERE PSORIASIS

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OBJECTIVES: Limited information is available on the cost effectiveness of newer biologic agents for treatment of psoriasis. The objective of this study is, from a United States societal perspective, to compare the cost-effectiveness of etanercept and ustekinumab therapy in patients with moderate-to-severe psoriasis based on head-to-head clinical trial information. **METHODS:** A Markov model was constructed to simulate the incremental cost per quality-adjusted life year gained. Costs were estimated from the societal perspective in the United States over a time horizon of five years. All cost and effectiveness estimates were obtained from the relevant literature. An annual discount rate of 3% was applied to costs and quality-adjusted life years. All costs were adjusted to 2011 US dollars. One-way and threshold sensitivity analyses assessed the robustness of model results. **RESULTS:** In the base case, over a 5-year time horizon, ustekinumab 45 mg was dominant versus etanercept 50 mg. The base case incremental cost-effectiveness ratio (ICER) comparing ustekinumab 90 mg with etanercept 50 mg averaged $267,761 per QALY gained. The ICER comparing ustekinumab 90 mg with ustekinumab 45 mg averaged $915,179 per QALY gained. ICERs were quite sensitive to unit prices for ustekinumab and etanercept. **CONCLUSIONS:** Given the limitations of the available data, ustekinumab 45 mg was dominant over etanercept 50 mg for a five-year time horizon, whereas ustekinumab 90 mg was more costly and marginally more effective than etanercept 50 mg. Ustekinumab 90 mg would not be considered cost effective using a US willingness-to-pay threshold of $120,000-150,000 per QALY.

PSY28

COST-EFFECTIVENESS ANALYSIS OF CELECOXIB IN THE TREATMENT OF CHRONIC PAIN IN PATIENTS WITH OSTEOARTHRITIS OR RHEUMATOID ARTHRITIS VERSUS THE USE OF ETORICOXIB OR LUMIRACOXIB IN MEXICO

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OBJECTIVES: Patients with chronic pain due to osteoarthritis (OA) or rheumatoid arthritis (RA) do not often obtain adequate relief or experience unacceptable side effects due their pain-control treatments. The objective of this study was to perform a cost-effectiveness analysis comparing celecoxib, etoricoxib and lumiracoxib in the treatment of chronic pain in patients with OA and RA, from the Mexican Social Security Institute (IMSS) perspective. **METHODS:** A decision-tree model (12-weeks time horizon) was used to compare pain reduction and direct medical costs associated to competing alternatives. A systematic literature review was performed to identify the pain reduction (reported through visual analogue scales) and adverse events (AE) incidence rate associated. Comparators were: celecoxib 200mg/day, etoricoxib 90mg/day and lumiracoxib 100mg/day for patients with OA and RA. A meta-analysis with selected publications (n=10) was performed. Resource utilization was extracted from clinical practice guidelines and unit costs were retrieved from IMSS official sources. Probabilistic sensitivity analysis was performed. Acceptability curves were developed. **RESULTS:** Pain reductions vs. placebo were: celecoxib 14.18% (CI95% 10.48-17.87, $p<0.00001$); etoricoxib 12.70% (7.67-17.73, $p<0.00001$) and lumiracoxib 9.47% (7.17-11.77, $p<0.00001$). Differences between celecoxib and lumiracoxib was meaningful ($p<0.05$). The odds ratios of AE incidence vs. placebo were: 1.06 (0.77-1.46, $p=0.37$); 1.09 (0.87-1.36, $p=0.73$) and 1.44 (0.88-2.34, $p=0.14$), respectively. The expected medical costs (2011 US$) were: $197.93 (±$9.52); $221.54 (±$7.06) and $306.65 (±$12.86), respectively. The cost of management of AE contributed with $101.28, $95.00 and $146.17 of the overall expected costs, respectively. In regards to etoricoxib (basecase), celecoxib showed to be a cost-saving strategy with a cost-effective proportion of 76.7% (74.1%-79.3%); while lumiracoxib was the less effective and more costly strategy. **CONCLUSIONS:** At IMSS, celecoxib patients who suffer OA or RA would reach a higher incremental reduction in pain intensity at 12 weeks reducing overall costs in comparison to etoricoxib.

PSY29

LIFETIME IMPACT ON BLEEDING EPISODES AND HOSPITALIZATION OF ON-DEMAND TREATMENT OPTIONS IN FRENCH HEMOPHILIA PATIENTS WITH INHIBITORS

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OBJECTIVES: In the French setting, uncontrolled bleeding episodes in hemophilia patients with inhibitors require emergency/inpatient care. The impact of on-demand (OD) treatment of bleeding episodes remain rarely quantified in France. **METHODS:** We modeled the lifetime number of bleeding episodes and hospitalizations associated with recombinant activated Factor VIIa (rFVIIa) and plasma-derived activated prothrombin complex concentrate (pd-aPCC) to investigate the impact of faster bleeding resolution of a new bypassing agent (BA) by applying hypothetical adjustments to the performance of rFVIIa. The exploratory semi-Markov model assumed a French payer perspective and simulated treatment of 2-year old male hemophilia patients with high-responding inhibitors. Model inputs were obtained from published international studies and French government sources. Comparisons of the current BAs pertaining to dosing and base-case efficacy rates were obtained from a Bayesian meta-analysis pooling available estimates. Model outcomes included the rate of hospitalization due to uncontrolled bleeds and number of minor/major bleed over lifetime. Sensitivity analyses were performed to test robustness of the model. **RESULTS:** rFVIIa required 4% fewer hospitalizations for bleed treatment than pd-aPCC, as well as a reduction in lifetime bleeds. rFVIIa resulted in 667 minor bleeds over the patient's lifetime compared with 673 in patients treated with pd-aPCC. When adopting potential improvements for a hypothetical new BA, faster bleed resolution that results in fewer rebleeds reduces hospitalizations by 13% in the rFVIIa arm compared to base case. **CONCLUSIONS:** Additional research is needed to understand how increased bleed control and faster resolution of bleeds in French inhibitor patients translate into a reduction in other health resources utilization such as emergency visits to hemophilia treatment centers and indirect costs including missed school/productivity loss which can improve the quality of life of patients and caregivers.

PSY30

COST UTILITY ANALYSIS OF THE PROFILAXIS VERSUS ON-DEMAND TREATMENT WITH RECOMBINANT FACTOR IX FOR THE TREATMENT OF HEMOPHILIA B IN MEXICO

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